

DAHLIA MOSAIC VIRUS

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Dahlias (*Dahlia* sp. Cav.) have been long-time floral favorites prized for their numerous forms and unsurpassed array of colors (7). The plants themselves can attain heights of four feet or more, often requiring a stake and creative placement in the garden setting. Dahlias with symptoms of dahlia mosaic virus infection (DaMV) have been observed in the United States since 1927 (1).



Figure 1. Dahlia mosaic virus. Vein banding of dahlia leaf infected with DaMV.

SYMPTOMS: Symptoms include yellow vein-banding of leaves, stunting of plants, shortening of internodes, and dwarfed lateral shoots. Often plants may appear bushy which might be considered an improvement over their "normal" stature. Certain cultivars will exhibit only one of these symptoms, while others express combinations of several. Some varieties are virtually symptomless yet harbor the virus (5).

DISEASE DEVELOPMENT: DaMV is distributed worldwide and may occur wherever dahlias are grown. Vegetative dahlia propagation (tuberous roots, cuttings) provides excellent means for introduction and spread of the virus. Once introduced, DaMV is transmitted efficiently by several aphid species commonly infesting dahlias (1). Symptomless plants harboring DaMV also serve as sources for field spread by aphids (8). Only *Dahlia* species have been found to be naturally infected by DaMV. There have been no reports of DaMV naturally infecting any other cultivated plants or weeds (1). There has also been no evidence of seed transmission for this virus (2).

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CONTROL:

1. Rogue symptomatic infected dahlias, being aware that even symptomless plants may contain the virus.
2. Start dahlias from seed. Dahlia seed of cultivars suitable for beds, borders and cuttings is available.
3. Use virus-free plant material if available (4). Years of plant breeding have produced many desirable and quite valuable dahlia cultivars. Meristem-tip cutting techniques to eliminate virus from plant tissue were first reported successful using dahlias.
4. Avoid planting near dahlias which may be infected with DaMV.
5. Control aphids.

SURVEY AND DETECTION: Look for yellow vein-banded leaves, shortened internodes, or stunted, bushy plants. Visual surveys for DaMV are limited by the presence of normal appearing, yet infected, plants.

DaMV is a member of the caulimovirus group with isometric "spherical" particles about 50 nm in diameter containing double-stranded DNA (2,8). DaMV diagnosis through detection of intracellular inclusions is useful when concentrations of inclusions are high (3,5). Successful mechanical sap transmissions to Verbesina encelioides (Cav.) Benth. & Hook. (butter daisy) may be accomplished using liquid nitrogen to prepare extracts (2,5). Serological testing for DaMV is also available (1).

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